

AMENDMENTS TO THE CLAIMS

Claims 1-10 (Cancelled).

11. (Currently Amended) A method of manufacturing a semiconductor element, comprising:
forming a gate electrode having a metallic silicide layer on a semiconductor substrate;
decreasing grain boundaries on a surface of the metallic silicide layer, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries comprising performing a heat treatment on the metallic silicide layer in an atmosphere consisting of a mixture gas of chief elements of nitrogen and ammonia; and
forming a spacer consisting of an oxide film on a side wall of the gate electrode;
wherein said performing of the heat treatment is conducted in an atmosphere including an oxidizable gas of less than 100ppm.

Claim 12 (Cancelled).

13. (Previously Presented) The method of claim 11, wherein the metallic silicide layer comprises a tungsten silicide layer, and said performing of the heat treatment is conducted at temperature in a range of 700°C to 800°C for a time period in a range of 30 seconds to 40 seconds.

14. (Currently Amended) ~~The method of claim 11,~~ A method of manufacturing a semiconductor element, comprising:
forming a gate electrode having a metallic silicide layer on a semiconductor substrate;
decreasing grain boundaries on a surface of the metallic silicide layer, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries comprising performing a heat treatment on the metallic silicide layer in an atmosphere consisting of a mixture gas of chief elements of nitrogen and ammonia; and
forming a spacer consisting of an oxide film on a side wall of the gate electrode;

wherein the metallic silicide layer comprises a tungsten silicide layer, and said performing of the heat treatment is conducted in an atmosphere including ammonia in a range of 1% to 3%.

15. (Currently Amended) ~~The method of claim 11;~~ A method of manufacturing a semiconductor element, comprising:

forming a gate electrode having a metallic silicide layer on a semiconductor substrate;
decreasing grain boundaries on a surface of the metallic silicide layer, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries comprising performing a heat treatment on the metallic silicide layer in an atmosphere consisting of a mixture gas of chief elements of nitrogen and ammonia; and

forming a spacer consisting of an oxide film on a side wall of the gate electrode;
wherein said decreasing of the grain boundaries is performed after performing a reduced pressure process.

16. (Currently Amended) ~~The method of claim 11;~~ A method of manufacturing a semiconductor element, comprising:

forming a gate electrode having a metallic silicide layer on a semiconductor substrate;
decreasing grain boundaries on a surface of the metallic silicide layer, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries comprising performing a heat treatment on the metallic silicide layer in an atmosphere consisting of a mixture gas of chief elements of nitrogen and ammonia; and

forming a spacer consisting of an oxide film on a side wall of the gate electrode;
wherein said performing of the heat treatment is conducted in an atmosphere including an oxidizable gas, and said decreasing of the grain boundaries is performed after performing a reduced pressure process of reducing the oxidizable gas level to less than 100ppm.

17. (Previously Presented) The method of claim 11, wherein the metallic silicide layer comprises a tungsten silicide layer, and said performing of the heat treatment is conducted at a

temperature in a range of 700°C to 800°C and is performed after performing a reduced pressure process at a pressure of 13pa to 65pa.

18. (Previously Presented) A method of manufacturing a semiconductor element, comprising:
forming a gate electrode having a tungsten silicide layer on a semiconductor substrate;
decreasing grain boundaries on a surface of the tungsten silicide layer, at least a portion of the surface of the tungsten silicide layer being exposed, said decreasing of the grain boundaries comprises performing a heat treatment in an atmosphere including ammonia in a range of 1% to 3%; and

forming a spacer consisting of an oxide film on a side wall of the gate electrode.

19. (Previously Presented) The method of claim 18, wherein said performing of the heat treatment is conducted in an atmosphere including an oxidizable gas of less than 100ppm.

20. (Previously Presented) The method of claim 18, wherein said performing of the heat treatment is conducted at temperature in a range of 700°C to 800°C for a time period in a range of 30 seconds to 40 seconds.

21. (Previously Presented) The method of claim 18, wherein said decreasing of the grain boundaries is performed after performing a reduced pressure process.

22. (Previously Presented) The method of claim 18, wherein said performing of the heat treatment is conducted in an atmosphere including an oxidizable gas, and said decreasing of the grain boundaries is performed after performing a reduced pressure process of reducing the oxidizable gas level to less than 100ppm.

23. (Previously Presented) The method of claim 18, wherein said performing of the heat treatment is conducted at a temperature in a range of 700°C to 800°C and is performed after performing a reduced pressure process at a pressure of 13pa to 65pa.
24. (Previously Presented) A method of manufacturing a semiconductor element, comprising:
forming a gate electrode having a metallic silicide layer on a semiconductor substrate;
decreasing grain boundaries on a surface of the metallic silicide layer, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries being performed after performing a reduced pressure process; and
forming a spacer consisting of an oxide film on a side wall of the gate electrode.
25. (Previously Presented) The method of claim 24, wherein said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer in an atmosphere consisting of a chief element of nitrogen gas.
26. (Previously Presented) The method of claim 24, wherein said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer in an atmosphere consisting of a chief element of argon gas.
27. (Previously Presented) The method of claim 24, wherein said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer in an atmosphere including an oxidizable gas of less than 100ppm.
28. (Previously Presented) The method of claim 24, wherein the metallic silicide layer comprises a tungsten silicide layer, and said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer at temperature in a range of 700°C to 800°C for a time period in a range of 30 seconds to 40 seconds.

29. (Previously Presented) The method of claim 24, wherein said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer in an atmosphere including an oxidizable gas, and said reduced pressure process comprises reducing the oxidizable gas level to less than 100ppm.

30. (Previously Presented) The method of claim 24, wherein the metallic silicide layer comprises a tungsten silicide layer, and said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer at a temperature in a range of 700°C to 800°C and after said performing of the reduced pressure process at a pressure of 13pa to 65pa.

31. (Previously Presented) A method of manufacturing a semiconductor element, comprising:
forming a gate electrode having a metallic silicide layer on a semiconductor substrate;
performing a reduced pressure process;
after said performing of the reduced pressure process, decreasing grain boundaries on a surface of the metallic silicide layer, at least a portion of the surface of the metallic silicide layer being exposed, said decreasing of the grain boundaries comprises performing a heat treatment on the metallic silicide layer in an atmosphere including an oxidizable gas, and said reduced pressure process comprises reducing the oxidizable gas level to less than 100ppm; and
forming a spacer consisting of an oxide film on a side wall of the gate electrode.

32. (Previously Presented) The method of claim 31, wherein said performing of the heat treatment is conducted in an atmosphere consisting of a chief element of nitrogen gas.

33. (Previously Presented) The method of claim 31, wherein said performing of the heat treatment is conducted in an atmosphere consisting of a chief element of argon gas.

34. (Previously Presented) The method of claim 31, wherein the metallic silicide layer comprises a tungsten silicide layer, and said performing of the heat treatment is conducted at

temperature in a range of 700°C to 800°C for a time period in a range of 30 seconds to 40 seconds.

35. (Previously Presented) The method of claim 31, wherein the metallic silicide layer comprises a tungsten silicide layer, and said performing of the heat treatment is conducted at a temperature in a range of 700°C to 800°C and is performed after performing said reduced pressure process at a pressure of 13pa to 65pa.